

5 each of said image sensor, said at least one illumination light source and said at least  
6 one aiming light source.

1 4. The imaging module of claim 1, further comprising at least one planar  
2 optical component and wherein said frame comprises sidewalls having resilient  
3 fingers formed therein for receiving and securing said optical component in said  
4 frame in a stationary position in said frame without use of adhesives or any  
5 additional mechanical securing apparatuses or agents.

1 5. The imaging module of claim 1, wherein said circuit board carries  
2 essentially all image sensor signal processing circuitry, image capture circuitry, and  
3 decoding and or recognizing circuitry of an optical reader in which said module is to  
4 be installed.

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**[Please amend claim 6 as follows:]**

1 6. (Amended) The imaging module of claim 1, wherein said image sensor is  
2 a 2D image sensor, wherein said at least one light source is a plurality of aiming  
3 light sources, and wherein said module includes optics associated with said plurality  
4 of aiming light sources for projecting a solitary horizontal line aiming pattern in a  
5 target area.

**[Please amend claim 7 as follows:]**

1 7. (Amended) The imaging module of claim 1, wherein said frame is a one-  
2 piece unit defining top, bottom and side sidewalls of said module, and wherein said  
3 sidewalls and said circuit board define a cubic rectangular configuration.

**[Please amend claim 8 as follows:]**

1 8. (Amended) The imaging module of claim 7, wherein said imaging module  
2 further comprises a lens assembly and wherein said frame is a one-piece unit further  
3 comprising a retainer section retaining said lens assembly.

**[Please amend claim 9 as follows:]**

1 9. (Amended) The imaging module of claim 7, wherein said top and side  
2 sidewalls of said one-piece frame define a partially enclosed contained area, and  
3 wherein said at least one light source and said image sensor are disposed inside said  
4 contained area, whereby said at least one light source and said image sensor are  
5 structurally protected by said frame.

**[Please amend claim 10 as follows:]**

B3  
1 10. (Amended) The imaging module of claim 1, wherein said frame includes  
2 top and side sidewalls, and wherein a combination of said circuit board and said top  
3 and side sidewalls defines a partially enclosed contained area and delimits an  
4 exterior of said module, and wherein said at least one light source is disposed inside  
5 said contained area, whereby said at least one light source is structurally protected by  
6 a combination of said circuit board and said frame.

**[Please amend claim 11 as follows:]**

1 11. (Amended) The imaging module of claim 1, wherein said frame includes  
2 top and side sidewalls and wherein a combination of said circuit board and said top  
3 and side sidewalls defines a partially enclosed contained area and delimits an  
4 exterior of said module, and wherein said at least one light source and said image  
5 sensor are disposed inside said contained area, whereby said at least one light source  
6 and said image sensor are structurally protected by a combination of said circuit  
7 board and said frame.

**[Please amend claim 12 as follows:]**

1 12. (Amended) The imaging module of claim 10, wherein essentially an  
2 entirety of light sources of said module are incorporated in said contained area.

B3  
1 13. (Presented as amended in 12/16/99 Preliminary Amendment) The  
2 imaging module of claim 1, wherein said frame includes a back plate having a center  
3 recess for receiving and aligning said image sensor.

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1 14. (Presented as amended in 12/16/99 Preliminary Amendment) The  
2 imaging module of claim 1, wherein said frame includes a back plate having a center  
3 recess for receiving and aligning said image sensor and at least one side recess for  
4 accommodating electrical components emanating forwardly of said circuit board.

1 15. (Amended) The imaging module of claim 1, wherein said at least one  
2 light source comprises a pair of aiming light sources, and wherein said module  
3 further comprises an aperture plate having a pair of apertured domes disposed over  
4 said light sources for shaping light emanating from said aiming light sources.

B  
1 16. (Amended) The imaging module of claim 1, wherein said frame  
2 includes a back plate, and wherein said at least one light source further includes  
3 illumination and aiming LEDs having leads extending through said back plate and  
4 being electrically connected to said circuit board.

1 17. (Amended) The imaging module of claim 1, wherein said at least one  
2 light source further includes illumination and aiming LEDs being electrically  
3 connected to said circuit board, and wherein said module further comprises:  
4 an aperture plate including domes having slit apertures for shaping light  
5 emanating from said aiming LEDs being fit over said aiming LEDs; and  
6 a diffuser plate including optics for diffusing light emanating from said  
7 illumination LEDs being positioned in said optical reader forward of said aperture  
8 plate.

1 18. The imaging module of claim 17, further including means adapting said  
2 diffuser plate to be snap-fit onto said frame.

1 19. The imaging module of claim 17, further comprising:  
2 means adapting said diffuser plate to be snap-fit onto said frame; and  
3 means adapting said aperture plate to be biased toward said back plate when

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4 said diffuser plate is snap-fit onto said frame.

**Please amend claim 39 as follows:**

*B*  
1 39. (Amended) An optical reader for reading indicia, said optical reader  
2 comprising:  
3 a housing; and  
4 an imaging module disposed in said housing, said imaging module including  
5 a frame;  
6 a circuit board mounted to said frame;  
7 an image sensor carried by said circuit board; and  
8 at least one light source for illuminating at least part of a target area  
9 outside of said housing wherein said at least one light source is mounted to said  
10 circuit board, whereby said circuit board carries both of said image sensor and said  
11 at least one light source.

**Please cancel claim 40.**

**Please amend claim 41 as follows:**

*Bb*  
1 41. (Amended) The optical reader of claim 39, wherein said at least one light  
2 source includes at least one illumination light source and at least one aiming light  
3 source, and wherein said at least one illumination light source and said at least one  
4 aiming light source are each mounted to said circuit board, whereby said circuit  
5 board carries each of said image sensor, said at least one illumination light source  
6 and said at least one aiming light source.

1 42. The optical reader of claim 39, further comprising at least one planar  
2 optical component and wherein said frame comprises sidewalls having resilient  
3 fingers formed therein for receiving and securing said optical component in said  
4 frame in a stationary position in said frame without use of adhesives or any  
5 additional mechanical securing apparatuses or agents.

1           43. The optical reader of claim 39, wherein said circuit board carries  
2 essentially all image sensor signal processing circuitry, image capture circuitry, and  
3 decoding and or recognizing circuitry of an optical reader in which said module is to  
4 be installed.

**[Please amend claim 44 as follows:]**

1           44. (Amended) The optical reader of claim 39, wherein said image sensor is  
2 a 2D image sensor, wherein said at least one light source is a plurality of aiming  
3 light sources and wherein said module includes optics associated with said plurality  
4 of aiming light source for projecting a solitary horizontal line aiming pattern in a  
5 target area.

**[Please amend claim 45 as follows:]**

1           45. (Amended) The optical reader of claim 39, wherein said frame is a one-  
2 piece unit defining top bottom and side sidewalls of said module, and wherein said  
3 sidewalls and said circuit board define a cubic rectangular configuration.

**[Please amend claim 46 as follows:]**

1           46. (Amended) The optical reader of claim 45, wherein said imaging module  
2 further comprises a lens assembly and wherein said frame is a one-piece unit further  
3 comprising a retainer section retaining said lens assembly.

**[Please amend claim 47 as follows:]**

1           47. (Amended) The optical reader of claim 45, wherein said top and side  
2 sidewalls of said one-piece frame define a partially enclosed contained area, and  
3 wherein said at least one illumination source and said image sensor are disposed  
4 inside said contained area, whereby said at least one illumination source and said  
5 image sensor are structurally protected by said frame.

**[Please amend claim 48 as follows:]**

1           48. (Amended) The optical reader of claim 39, wherein said frame includes  
2 top and side sidewalls, and wherein a combination of said circuit board and said top

3 and side sidewalls defines a partially enclosed contained area and delimits an  
4 exterior of said module, and wherein said at least one illumination source is disposed  
5 inside said contained area, whereby said at least one illumination source is  
6 structurally protected by a combination of said circuit board and said frame.

**[Please amend claim 49 as follows:]**

1 49. (Amended) The optical reader of claim 39, wherein said frame includes  
2 top and side sidewalls and wherein a combination of said circuit board and said top  
3 and side sidewalls defines a partially enclosed contained area and delimits an  
4 exterior of said module, and wherein said at least one illumination source and said  
5 image sensor are disposed inside said contained area, whereby said at least one  
6 illumination source and said image sensor are structurally protected by a  
7 combination of said circuit board and said frame.

**[Please amend claim 50 as follows:]**

1 50. (Amended) The optical reader of claim 48, wherein essentially an  
2 entirety of illumination sources of said module are incorporated in said contained  
3 area.

1 51. The optical reader of claim 39, wherein said frame includes a back plate  
2 having a center recess for receiving and aligning said image sensor.

1 52. The optical reader of claim 39, wherein said frame includes a back plate  
2 having a center recess for receiving and aligning said image sensor and at least one  
3 side recess for accommodating electrical components extending forwardly of said  
4 circuit board.

1 53. The optical reader of claim 39, further including a pair of aiming light  
2 sources, and an aperture plate having a pair of apertured domes disposed over said  
3 light sources for shaping light emanating from said aiming light sources.

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1           54. The optical reader of claim 39, wherein said frame includes a back plate,  
2 and wherein said at least one illumination source further includes illumination and  
3 aiming LEDs having leads extending through said back plate and being electrically  
4 connected to said circuit board.

1           55. The optical reader of claim 39, wherein said at least one illumination  
2 source further includes illumination and aiming LEDs being electrically connected to  
3 said circuit board, and wherein said module further comprises:

4           an aperture plate including domes having slit apertures for shaping light  
5 emanating from said aiming LEDs being fit over said aiming LEDs; and

6           a diffuser plate including optics for diffusing light emanating from said  
7 illumination LEDs being positioned in said optical reader forward of said aperture  
8 plate.

1           56. The optical reader of claim 55, further including means adapting said  
2 diffuser plate to be snap-fit onto said frame.

1           57. The optical reader of claim 55, further comprising:  
2 means adapting said diffuser plate to be snap-fit onto said frame; and  
3 means adapting said aperture plate to be biased toward said back plate when  
4 said diffuser plate is snap-fit onto said frame.

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**Please add new claims 58-74 as follows:**

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1           58. The imaging module of claim 1, wherein said at least one light source is  
2 an illumination light source.

1           59. The imaging module of claim 58, wherein said at least one light source  
2 is a plurality of illumination light sources.

1           60. The imaging module of claim 1, wherein said at least one light sources is  
2 an aiming light source.

1           61. The imaging module of claim 1, wherein said at least one light source is  
2 a plurality of aiming light sources.

1           62. The optical reader of claim 39, wherein said at least one light source is  
2 an illumination light source.

1           63. The optical reader of claim 39, wherein said at least one light source is a  
2 plurality of illumination light sources.

*Ben's*  
1           64. The optical reader of claim 39, wherein said at least one light source is  
2 an aiming light source.

1           65. The optical reader of claim 39, wherein said at least one light source is a  
2 plurality of aiming light source.

1           66. An imaging module comprising:  
2 a frame having sidewalls;  
3 a circuit board mounted to said frame;  
4 an image sensor carried by said circuit board;  
5 at least one light source for illuminating at least part of a target area;  
6 a planar optical member carrying at least one optical component; and  
7 resilient fingers formed in said sidewalls for receiving and securing said  
8 planar optical member in a stationary position in said frame.

1           67. The module of claim 66, wherein said planar optical member delimits a  
2 front side of said module, and wherein said circuit board delimits a rear side of said  
3 module.

1           68. An imaging module comprising:  
2 a one-piece frame including a lens assembly retainer section and top and side  
3 sidewalls delimiting an area;  
4 a circuit board;



5 an imaging assembly including a sensor carried by said circuit board, and a  
6 lens assembly disposed in said retainer section; and  
7 at least one light source for illuminating at least part of a target area.

1 69. The imaging module of claim 68, wherein said at least one light source  
2 is carried by said circuit board.

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1 70. The imaging module of claim 69, wherein said at least one light source  
2 is an illumination light source.

1 71. The imaging module of claim 69, wherein said at least one light source  
2 is an aiming light source.

1 72. An imaging module comprising:  
2 a circuit board;  
3 an image sensor;  
4 an aiming light source for projecting at least part of an aiming pattern on a  
5 target area; and  
6 an opaque dome disposed over said aiming light source, said opaque dome  
7 having an aperture.

1 73. The imaging module of 72, wherein said image sensor and said aiming  
2 light source are disposed on said circuit board.

1 74. The imaging module of claim 73, wherein said imaging module further  
2 includes an illumination light source disposed on said circuit board.

#### REMARKS

Claims 1-3, 5-12, 15, 16, 39-41, 43-50, 53, and 54 are rejected under 35  
U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,821,513 to O'Hagan et al.  
(O'Hagan). Claims 4, 13, 14, 17-19, 42, 51, 52, and 55-57 are rejected under 35  
U.S.C. § 103(a) as being unpatentable over O'Hagan in view of well known prior